# DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

# LAKE TROPHIC DATA

# MORPHOMETRIC:

Lake: JOE ENGLISH POND	Lake Area (ha):	9.02
Town: AMHERST	Maximum depth (m):	9.1
County: Hillsborough	Mean depth (m):	3.1
River Basin: Merrimack	Volume (m³): 2	56500
Latitude: 42°56'05" N	Relative depth:	2.8
Longitude: 71°38'20" W	Shore configuration:	1.57
Elevation (ft): 498	Areal water load (m/yr):	56.62
Shore length (m): 1600	Flushing rate (yr <sup>-1</sup> ):	18.30
Watershed area (ha): 973.8	P retention coeff.:	0.34
% watershed ponded: 0.5	Lake type: natural	w/dam

BIOLOGICAL:	18 January 1993	27 July 1992
DOM. PHYTOPLANKTON (% TOTAL) #	NO PHYTOPLANKTON	SYNURA 80%
#	SAMPLES COLLECTED	
#	3	A CONTRACTOR OF THE CONTRACTOR
PHYTOPLANKTON ABUNDANCE (cells/mL		635
CHLOROPHYLL-A (µg/L)		6.19
DOM. ZOOPLANKTON (% TOTAL) #	NO ZOOPLANKTON	KERATELLA 39%
*#	SAMPLES COLLECTED	NAUPLIUS LARVA 20%
#	3	
ROTIFERS/LITER		40
MICROCRUSTACEA/LITER		25
ZOOPLANKTON ABUNDANCE (#/L)		69
VASCULAR PLANT ABUNDANCE		Abundant
SECCHI DISK TRANSPARENCY (m)		3.5
BOTTOM DISSOLVED OXYGEN (mg/L)	6.6	0.0
BACTERIA (E. coli, #/100 ml) #		1
#	2	2
#	3	

# SUMMER THERMAL STRATIFICATION:

# stratified

Depth of thermocline (m): 3.5 Hypolimnion volume  $(m^3)$ : 18000 Anoxic volume  $(m^3)$ : 7500

CHEMICAL:			JOE ENGLI AMHERST	SH POND	
	18 Janua	ary 1993	27 July 1992		
DEPTH (m)	3.0	6.0	3.0		6.0
pH (units)	6.0	5.9	6.5		5.9
A.N.C. (Alkalinity)	2.5	2.9	4.5		2.7
NITRATE NITROGEN	0.03	< 0.02	< 0.02		< 0.02
TOTAL KJELDAHL NITROGEN	0.39	0.29			
TOTAL PHOSPHORUS	0.009	0.010	0.013		0.018
CONDUCTIVITY (µmhos/cm)	49.4	54.5	36.5		37.9
APPARENT COLOR (cpu)	29	29	45		32
MAGNESIUM			0.42		
CALCIUM			2.1		
SODIUM			3.8		
POTASSIUM			0.43		
CHLORIDE	8	9	6		5
SULFATE	5	5	3		4
TN : TP	47	29			
CALCITE SATURATION INDEX			3.8	-	

All results in mg/L unless indicated otherwise

#### TROPHIC CLASSIFICATION: 1992

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	2	5	1	12	Meso.

#### COMMENTS:

- 1. Access to this pond is not available to the general public; the pond is located completely within the New Boston Air Force Tracking Station.
- 2. Secondarily treated sewage from the military complex is discharged to a wetland that leads to a tributary of the pond.
- 3. Military personnel use the pond extensively for swimming and fishing; they allow no gas motors on the pond.
- 4. Camping areas were located along several areas of the pond.
- 5. Merismopedia (45%) and Sphaerocystis (20%) were the dominant wholewater phytoplankton genera. Blue-greens (55%) and greens (25%) were the dominant classes.

# FIELD DATA SHEET

LAKE: JOE ENGLISH POND DATE: 07/27/92

TOWN: AMHERST

WEATHER: PARTLY CLOUDY, WARM AND BREEZY

DEPTH (M)	TEMP	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	24.2	7.4	87 %
1.0	23.2	7.2	84 %
2.0	22.2	6.2	71 %
3.0	18.5	8.4	88 %
4.0	13.0	9.8	91 %
5.0	10.0	4.2	37 %
6.0	7.8	2.1	17 %
7.0	6.6	0.1	1 %
8.0	6.0	0.0	0 %
			·

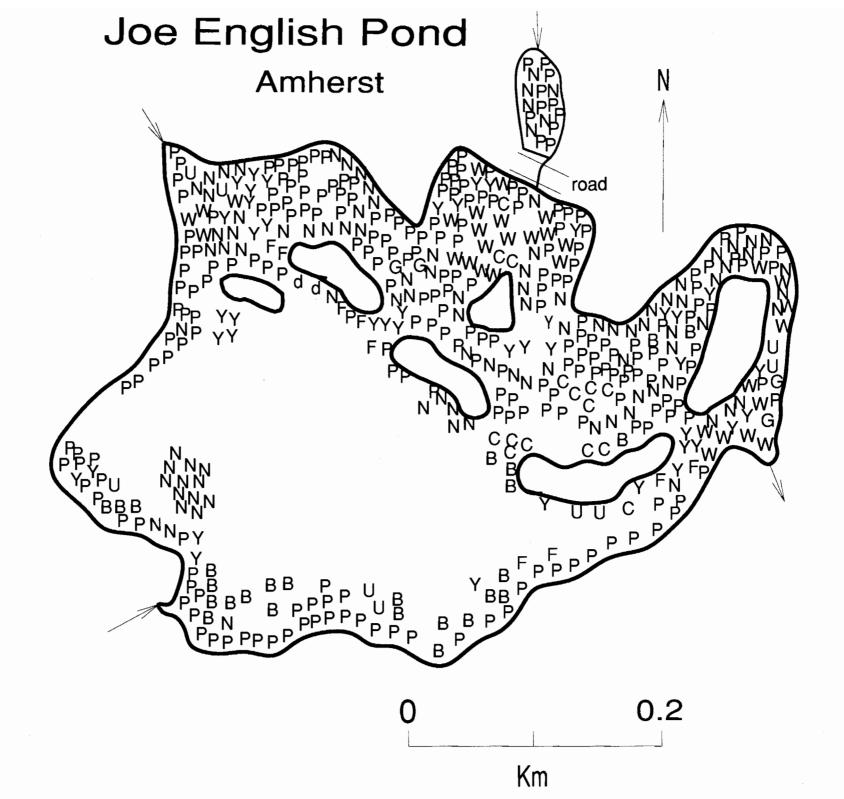
SECCHI DISK (m): 3.5

**COMMENTS:** 

BOTTOM DEPTH (m): 8.4

TIME: 1245

\*Dissolved oxygen values are in mg/L



# AQUATIC PLANT SURVEY

TOWN: AMHERST

DATE: 07/27/92

Кеу	PLANT	ABUNDANCE	
	GENERIC	COMMON	ABUNDANCE
P	Pontederia cordata	Pickerelweed	Abundant
N	Nymphaea	White water lily	Abundant
Y	Nuphar	Yellow water lily	Scat/Common
F	Nymphoides cordatum	Floating heart	Scat/Common
d	Dulichium arundinaceum	Three-way sedge	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
U	Utricularia	Bladderwort	Common
В	Brasenia schreberi	Water shield	Common
W	Potamogeton	Pondweed	Scat/Common
G	Gramineae	Grass family	Scattered
Т	Typha	Cattail	Sparse
S	Sparganium	Bur reed	Sparse
С	Chamaedaphne calyculata	Leatherleaf	Common

#### OVERALL ABUNDANCE: Abundant

#### **GENERAL OBSERVATIONS:**

LAKE: JOE ENGLISH POND

- 1. One island had a pine tree; the rest were actually mounds of leatherleaf with grasses and other plants mixed in.
- 2. Plants were very abundant in the northern coves; the small area north of the road was inaccessible by boat, but contained dense plant growth.
- 3. Frogs, turtles and a great blue heron were observed.